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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,065	03/29/2001	Daniel Mark Dreps	AUS920000726US1	5346

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EXAMINER

MASON, DONNA K

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 04/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/821,065

Applicant(s)

DREPS ET AL.

Examiner

Donna K. Mason

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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DETAILED ACTION

Drawings

1. The drawings were received on June 14, 2001 (Paper No. 2). These drawings are not acceptable.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement figures which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments, or remarks, section of the amendment. Any replacement drawing sheet must be identified in the top margin as "Replacement Sheet" and include all of the figures appearing on the immediate prior version of the sheet, even though only one figure may be amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheets must be clearly labeled as "Annotated Marked-up Drawings" and accompany the replacement sheets.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

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If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

2. The drawings were received on January 30, 2004 (Paper No. 4). These drawings are acceptable.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2-4, 6-9, 11, 14-17, 21, 22 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 2 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 1.
6. Claim 2 recites the limitation "bus lines" in line 3. There is insufficient antecedent basis for this limitation in the claim. It is unclear whether "bus lines" refers to the previously recited "clock bus lines", "data bus lines" or both. For examination purposes, "bus lines" as recited in claim 2, has been interpreted to refer to --data bus lines--.

7. Claim 3 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 1.

8. Claim 4 recites the limitation "The bus" in line 1. Based on the recommendations regarding claim 3, it is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 1.

9. Claim 4 recites the limitation "bus lines" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is unclear whether "bus lines" refers to the previously recited "clock bus lines", "data bus lines" or both. For examination purposes, "bus lines" as recited in claim 4, has been interpreted to refer to --clock bus lines--.

10. Claim 6 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 5.

11. Claim 7 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 5.

12. Claim 8 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 5.

13. Claim 9 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 5.

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14. Claim 11 recites the limitation "bus lines" in line 3. There is insufficient antecedent basis for this limitation in the claim. It is unclear whether "bus lines" refers to the previously recited "clock bus lines", "data bus lines" or both. For examination purposes, "bus lines" as recited in claim 4, has been interpreted to refer to --data bus lines--.

15. Claim 14 recites the limitation "bus lines" in line 11 (two occurrences). There is insufficient antecedent basis for this limitation in the claim. It is unclear whether "bus lines" refers to the previously recited "clock bus lines", "data bus lines" or both. For examination purposes, "bus lines" as recited in claim 14, has been interpreted to refer to --data bus lines--.

16. Claim 22 recites the limitations "a first resistor" in line 1 and "a second resistor" in lines 1-2. It is unclear whether "a first resistor" and "a second resistor" as recited in claim 22, refers to the same "a first resistor" and "a second resistor" as recited in the base claim 21. For examination purposes, claim 22 has been interpreted such that "a first resistor" in line 1 of claim 22 is changed to --the first resistor-- and "a second resistor" in lines 1-2 of claim 22 is changed to --the second resistor--.

17. Claim 23 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 5.

18. Claim 24 recites the limitation "The bus" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is recommended that "The bus" be changed to "The bus apparatus", as previously recited in independent claim 5.

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19. Claim 24 recites the limitation "bus lines" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is unclear whether "bus lines" refers to the previously recited "clock bus lines", "data bus lines" or both. For examination purposes, "bus lines" as recited in claim 24, has been interpreted to refer to --clock bus lines--.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 1-4, 9-13, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art ("APA") in view of U.S. Patent No. 6,278,312 to Dabral, et al. ("Dabral"), and further in view of U.S. Patent No. 6,519,664 to Rodriguez, et al. ("Rodriquez").

With regard to independent claim 1 and as shown in Fig. 2 of the present application, the APA discloses a bus, including a clock driver (item 210), a clock receiver (item 220) coupled to the clock driver by two clock bus lines (items 270 and 272) carrying complementary clock pulses, a plurality of drivers (items 202, 204, and 206) a plurality of receivers (items 221, 214, and 216) each coupled to a respective one of the plurality of drivers by bus lines (items 262, 264, and 266). With regard to dependent claim 9, the APA teaches the bus, further including a plurality of outputs

(items 282, 284, and 286) from the data receivers coupled to a deskew/retiming logic component (item 240).

With regard to independent claim 10 and dependent claims 11, 12, and 18, and as shown in Fig. 1 of the present application, the APA discloses a data processing system (item 100), including a plurality of components (e.g., items 102, 108, 104, etc.), and a bus (item 106) coupling at least two of the plurality of components. The APA also discloses the features of claims 10 and 18 as described with respect to claims 1 and 9 above.

The APA does not expressly disclose the bus or the data processing system where the receivers detect signals on respective bus lines with respect to a reference voltage derived from a combination of the complementary clock pulses, as described in independent claims 1 and 10. As shown in Fig. 4B, Dabral discloses a reference voltage (item 433) derived from a combination of complementary clock pulses (SIGNAL and SIGNAL#). As described in column 4, lines 63-65, SIGNAL and SIGNAL# are typically clock signals.

Also with regard to independent claims 1 and 10, the APA does not expressly disclose the bus or the data processing system where the reference voltage is derived from a resistive connection between the complementary clock pulses. As shown in Fig. 4B, Dabral discloses a reference voltage (item 433) derived from a resistive connection (items 432 and 434) between the complementary clock pulses (SIGNAL and SIGNAL#).

With regard to dependent claims 3, 4, 12, and 13 the APA does not expressly disclose the bus or the data processing system where resistors in the resistive

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connection have an approximately equivalent resistance. As described in column 6, lines 9-12, Dabral discloses resistors in the resistive connection that have an approximately equivalent resistance.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the reference voltage and resistor configuration of Dabral with the APA. The suggestion or motivation for doing so would have been to reduce or eliminate driver noise from the data signals (column 1, lines 44-59).

Further in regards to independent claims 1 and 10, the APA in view of Dabral does not expressly disclose the bus or the data processing system where each of the two clock bus lines is coupled to a supply voltage and ground through a clock bus divider resistor pair. As shown in Fig. 1, Rodriguez discloses bus lines coupled to a supply voltage and ground through a bus divider resistor pair (column 1, lines 12-16).

With regards to claims 2, 11, and 19-22, the APA in view of Dabral does not expressly disclose the bus where each of the plurality of bus lines is coupled to a supply voltage and ground through a data bus divider resistor pair. As shown in Fig. 1, Rodriguez discloses bus lines coupled to a supply voltage and ground through a bus divider resistor pair (column 1, lines 12-16).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the divider resistor pair of Rodriguez with the APA in view of Dabral. The suggestion or motivation for doing so would have been to bias the bus lines at a midpoint voltage when not driven by driver, such that the rise and fall times of

signals on the bus lines are symmetrical. This result is desirable in a source synchronous environment (column 1, lines 16-21).

Therefore, it would have been obvious to combine Rodriguez with Dabral and the APA to obtain the invention as specified in claims 1-4, 9-13, and 18-22.

22. Claims 5-8, 14-17, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art ("APA") in view of U.S. Patent No. 6,278,312 to Dabral, et al. ("Dabral"), and further in view of U.S. Patent No. 6,380,787 to Forbes.

With regard to independent claim 5, and as shown in Fig. 2 of the present application, the APA discloses a bus, including a clock driver (item 210), a clock receiver (item 220) coupled to the clock driver by two clock bus lines (items 270 and 272) carrying complementary clock pulses, a plurality of drivers (items 202, 204, and 206) a plurality of receivers (items 221, 214, and 216) each coupled to a respective one of the plurality of drivers by bus lines (items 262, 264, and 266).

With regard to independent claim 14, and as shown in Fig. 1 of the present application, the APA discloses a data processing system (item 100), including a plurality of components (e.g., items 102, 108, 104, etc.), and a bus (item 106) coupling at least two of the plurality of components. The APA also discloses the features of claims 14, as described with respect to claim 5 above.

The APA does not expressly disclose the bus or the data processing system where the receivers detect signals on respective bus lines with respect to a reference voltage derived from a combination of the complementary clock pulses, as described in

independent claims 5 and 14. As shown in Fig. 4B, Dabral discloses a reference voltage (item 433) derived from a combination of complementary clock pulses (SIGNAL and SIGNAL#). As described in column 4, lines 63-65, SIGNAL and SIGNAL# are typically clock signals.

Also with regard to independent claims 5 and 14, the APA does not expressly disclose the bus or the data processing system where the reference voltage is derived from a resistive connection between the complementary clock pulses. As shown in Fig. 4B, Dabral discloses a reference voltage (item 433) derived from a resistive connection (items 432 and 434) between the complementary clock pulses (SIGNAL and SIGNAL#).

With regard to dependent claims 23 and 24, the APA does not expressly disclose the bus where resistors in the resistive connection have an approximately equivalent resistance. As described in column 6, lines 9-12, Dabral discloses resistors in the resistive connection that have an approximately equivalent resistance.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the reference voltage and resistor configuration of Dabral with the APA. The suggestion or motivation for doing so would have been to reduce or eliminate driver noise from the data signals (column 1, lines 44-59).

With regard to claims 5-8 and 14-17, the APA in view of Dabral does not expressly disclose the bus or the data processing system including a first filter capacitor connecting the reference voltage signal to ground. As shown in 5, Forbes discloses a first filter capacitor connecting the reference voltage signal to ground.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Forbes with the APA in view of Dabral. The suggestion or motivation for doing so would have been to keep the reference voltage steady by controlling the rise and fall time.

Therefore, it would have been obvious to combine Forbes with Dabral and the APA to obtain the invention as specified in claims 5-8, 14-17, 23, and 24.

Response to Amendment

23. The Declaration filed on January 30, 2004 under 37 CFR 1.131 is sufficient to overcome the Oakeson, et al. reference (U.S. Patent No. 6,456,123).

Response to Arguments

24. Applicant's arguments (see Paper No. 4, filed January 30, 2004), with respect to the rejection(s) of claims 1-4, 9-13, and 18 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection(s) have been withdrawn. However, upon further consideration, a new ground of rejection is made in view of U.S. Patent No. 6,278,312 to Dabral, et al. ("Dabral"), and further in view of the newly found prior art reference, U.S. Patent No. 6,519,664 to Rodriguez, et al ("Rodriguez"). Dabral teaches the bus or the data processing system where the receivers detect signals on respective bus lines with respect to a reference voltage derived from a combination of complementary clock pulses, and Rodriguez teaches a bus divider resistor pair.

25. Applicant's arguments (see Paper No. 4, filed January 30, 2004), with respect to the 35 U.S.C. 103(a) rejection of claims 5-8 and 14-17 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Dabral, and further in view of the newly found prior art reference U.S. Patent No. 6,380,787 to Forbes. Dabral teaches the bus or the data processing system where the receivers detect signals on respective bus lines with respect to a reference voltage derived from a combination of complementary clock pulses, and Forbes teaches the use of capacitors connected to the reference voltage signal.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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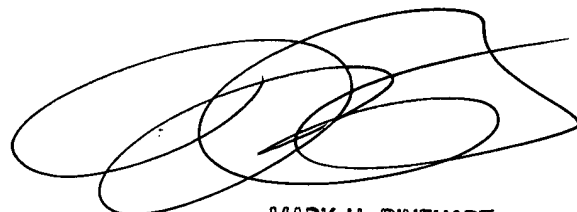
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donna K. Mason whose telephone number is (703) 305-1887. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H. Rinehart can be reached on (703) 305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DKM

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

MARK H. RINEHART
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100